Intrada® ALPR for Law Enforcement

Application examples using ALPR for Law Enforcement and Traffic Enforcement

Introduction

Over the years ALPR with Vehicle Analytics / Model-Make Recognition has proven itself as valuable tool in law enforcement applications. ALPR greatly improves the chance of timely identification of suspected cars, enhances efficiency of road-side vehicle registration checks, and enables new possibilities in speed and traffic enforcement.

As Q-Free we see our partners, clients and competitors use video analytics technology increasingly to enhance existing infrastructure or widen the scope of its use. Most importantly though are operational savings that can be achieved -do more in the same amount of time, or through automation- and increased coverage of vehicle matching.

Law enforcement encompasses a wide variety of disciplines each with different needs and modes of operations with regards to surveillance operations. In each, ALPR and vehicle analytics and can greatly increase revenue through increased testing coverage, and decrease operational cost. In these examples we will go over some common implementations, licensing options and why they work well in their respective situations.

Fixed ALPR for Traffic

Speed cameras, red light cameras or phone use and seat belt check cameras are examples of spot checking applications. These cameras are usually ALPR equipped to automate or assist review and billing processes at the back-end speeding up the process considerably reducing overhead costs. Fixed location cameras can use an off-the-shelf ALPR license as further processing of the vehicle registration is done in a back office.

A more common, modern, implementation is the average speed check. It provides an ideal case for ALPR and Vehicle Analytics to distinguish every individual car at high speed. Performing measurements at different points on the road and average between points, and start and end, makes it possible to manage driver behaviour - or fine if needed - over longer stretches of road instead of checking on a single spot. The technology allows for refined enforcement that see speeding over longer distances where it cannot be tolerated, for example around urban neighbourhoods or nature reserves. As these types of speed checks are performed over multiple cameras a centralized back-end and/or time stamped images from ALPR enabled cameras, sometimes even supplemented with radar, are common setups.

Environmental zones (sometimes referred to as low emission zones or green zones) and congestion charging zones are another good contemporary example of ALPR. Using surveillance cameras around the zone perimeters and processing back-end, either of which can be ALPR enabled, traffic ingress and egress and can be monitored and dynamically charged. ALPR is becoming an important tool in the toolboxes of the local government especially in heavily urbanized or industrial areas. Managing fine particle pollutions and traffic density does not only improve living conditions of its inhabitants it also provides a fine-grained way of enforcing an "polluter pays" strategy. The system can be deployed similar to the speed checking setup.

Mobile ALPR for Police

Although not exactly mobile, fixed law enforcement surveillance cameras equipped with ALPR are an essential tool to on-the-ground law enforcement. Officers may use triggers from the camera itself or a connected backend to quickly act on a spotted suspect vehicle. This flexibility greatly increases the chance of a timely intervention. This can include a uniquely identified vehicle using its registration number or -when reading the plate is not possible- include descriptive characteristics. These can include the make and model using Make-Model Recognition, vehicle type, vehicle color, and direction of travel. All this data can be extracted automatically using video analytics.

The same can be achieved - be it locally - by using an ALPR deployment in-car. Using pre-loaded lists from various sources in an on-board computer and using cameras mounted to car at different angles a patrolling car can detect vehicles in real-time allowing a quick response. ALPR can be used in scenarios where the vehicle is stationary or on the move though care needs to be taken in selecting the right hardware and an ALPR engine that can handle high speed applications.

Added Precision with Better Coverage

All these examples allude to a single theme. Combining the fine-grained detection mechanism of ALPR with auxiliary video analytics for vehicle properties can greatly increase test coverage increasing effectiveness of the surveillance intent, be it reducing traffic offences, national security, or crime. In all parts of the operation ALPR can support the operation without burdening the workforce. As a side effect a more effective enforcement has proven to lead to an increase in fine revenue and stopped offenders / criminals. The technical and licensing options to deploy are unlimited if significant consideration will be taken in deciding on what the goals are, as a consequence, and where ALPR should take deployed.

About Intrada

Intrada® ALPR (ANPR) is the Q-Free software library solution for automatic license plate recognition and vehicle video analytics offering an easy API for integration on any platform. Intrada® ALPR is suitable for any project, including white-label OEM applications such as ALPR camera's, value-added functionality in embedded devices, traffic back offices, and video analysis software. Intrada® ALPR is used worldwide in speed enforcement, parking and access control, low-emission zones, congestion charging schemes, among many others.

Intrada® Synergy Server (ISS) is a high-performance image processing solution with the lowest operational cost for automated video passages in the market. Intrada® Synergy Server is camera and back office supplier agnostic providing flexibility to work with any system. It is optimized for read accuracy or error rate delivering unparalleled performance in over 160 countries worldwide.